

Operating Instructions 4060/4062.



Always on the safe side.



With Compliments

CENTERLINE INC.

PRECISION SPINDLE ENGINEERING

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KaVo.Drive System

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A 1 User information


A 1.1 Meaning of the pictograms


 Situations where failure to follow the instructions may lead to danger, damage to material or operating faults.


 Important information for operator and engineer.


 Automatic mode
Automatic sequence


 Close, screw in,
fasten, etc.


 Open, release, loosen

 more, higher


 less, lower

 Continuous operation

 Time, time sequence

 Disconnect mains plug

A 1.2 Important information

 *The instructions for use should be read by the user before starting up the unit for the first time, in order to avoid incorrect operation and other damage. If other language versions are required, please request these from your responsible KaVo agent. Duplication and distribution of the instructions for use (IU) require KaVo's prior consent.*

All technical data, information and properties of the product described in the IU correspond to the state on going to press.

Modifications and improvements to the product as a result of new technical developments are possible.

This does not imply any right to retrofitting of existing units.

KaVo assumes no responsibility for damage arising through:

- external influences (poor quality of the media or inadequate installation)
- use of incorrect information
- improper use
- improperly performed repairs.

Repair and maintenance work - apart from the activities described in these instructions for use - may be performed only by qualified technical personnel.

In the event of modifications by third parties, the approvals become null and void. KaVo recommends using only original spare parts for operation and for repair.

A 1.3 Precautions

Safe operation and protection of the unit are ensured only through proper use in accordance with the instructions for use and using the tools approved for the purpose. The following should also be observed:

- the tool manufacturer's instructions,
- the work safety regulations,
- the accident prevention regulations.



■ *Each time before switching on, check the set speed.*

■ *Observe the permissible maximum speed and maximum pressure of the tools (according to tool manufacturer's instructions).*

■ *Use safety screens when working with rotating tools.*

■ *To avoid danger through accidental switching on, place the handpiece on a suitable shelf or tool support.*

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In the event of an unsatisfactory condition of the unit or improper use, e.g.:

- unsuitable tools
- tool shafts not manufactured according to DIN-ISO
- improper use or use not in accordance with the purpose
- unapproved speeds for tools used
- incorrect clamping of the tools in the chuck
- insufficient retaining force of the chuck (wear, soiling, failure to follow the product care instructions for the chuck system, etc.)
- different sizes of tool shaft and chuck
- lack of regular cleaning of the chuck
- failure to follow the maintenance instructions
- failure to comply with the accident prevention regulations (e.g. failure to use safety screens, safety devices, handpiece supports, etc.)
- Non-conformity with the EMW Guidelines regarding radiation from low frequency, radio frequency and microwaves (use shielded cable)
- failure to take into account signs of wear and damage
- tool shafts which have slipped out (potential danger = bending of the tool shafts)

there is a danger of injury and damage to material and unit, e.g. due to:

- Bending of the tool shafts
- Accidental withdrawal of the tools from the chuck
- Breaking or splintering of the tool.

- Eccentric rotation or shattering of tools, or
- Snagging and rolling up
- Catapulting of small material-parts

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A 1.4 Possible uses and applications

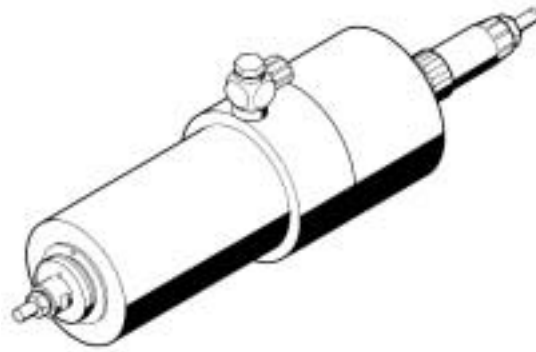
The motorised spindle is designed to be used in machines for filing processes, such as drilling, milling, cutting etc.

A 2 Scope of delivery - Accessories

A 2.1 Scope of delivery

Check to make sure delivery is complete:

- 1 HF Motor-spindle EWL 4060 or 4062 with connecting cable 1,5 m
- 1 Ratchet spanner of 10 mm
Mat.No. 0.411.5232
- 1 Fork spanner of 13 mm
Mat.No. 308.0313
- 1 Set of brushes Mat.No.. 0.411.0190
- 1 Test pin Mat.No.. 0.240.2308
- 1 Chuck 6 Mat.No.. 0.675.1482
- Operating instructions 0.488.5895

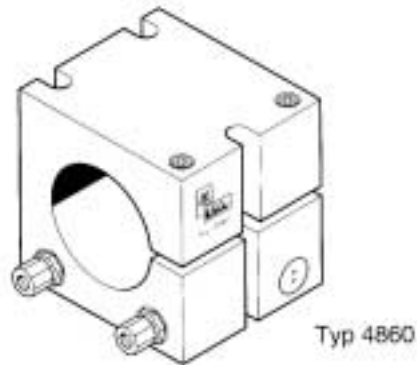


A 2.2 Accessory

For external air or water cooling:

Chucking device 4860 for \varnothing 60mm
(only for HF Motor-spindle EWL 4060)

HF Motor-spindle EWL 4060 \varnothing 60mm
HF Motor-spindle EWL 4062 \varnothing 61,91mm



A 3 Electrical connection

Check that voltage and frequency match the data given for the HF-converter.


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A 4 Fitting and commencing operation of HF Motor-spindle EWL 4060 or 4062

The spindle is designed for cooling via the spindle support.

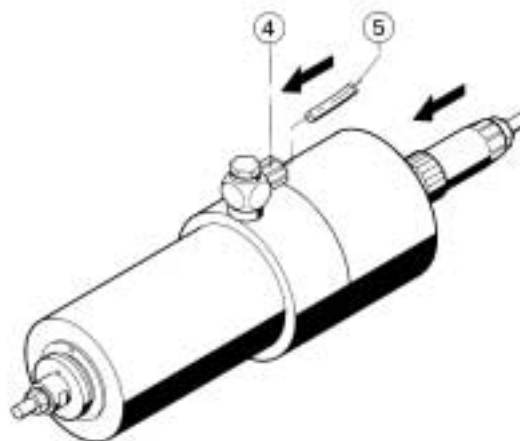
Fit the compressed air hose ⑤ $d_1 = 4 \text{ mm}$, $D_2 = 6 \text{ mm}$ in the direction of the arrow to the air control connection ④ and connect up.

The input of compressed air from min. 0,5 bar to max. 1 bar (min. 7 to max. 14 psi) must be dry and dustfree. It must not contain any foreign bodies or lubricants.

 Use only compressed air free from dirt, water and oil!

The HF-Motor spindle EWL 4060 and/or EWL 4062 is sealed up against penetration of dirt and coolant but must not be flooded with coolant or lubricant.

Operation is possible in all working positions both horizontal and vertical (tool showing down), with cooling through the spindle support or external cooling sheath.

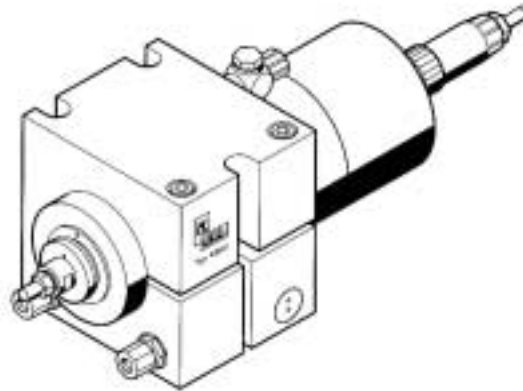



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When mounting the spindle pay attention to a completely cylindrical seating.


The spindle can be clamped over its whole casing length. It is recommended to clamp a large surface, and if possible in the middle of the spindle.

The HF Motor-Spindle EWL 4060 and/or 4062 is protected against spray water, but must not be plunged.




 *Spindles must only be mounted and operated in appropriate receptacles and machines, according to the application possibilities of the spindle.*

 *The spindles have to be connected to ground.*

 *Please apply no violence at all.*

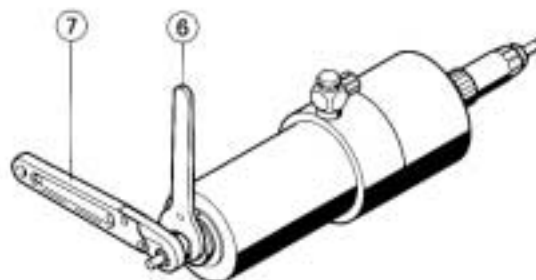
Mind the direction of rotation (see arrow on the rating plate).

Operate the HF Motor-Spindle EWL 4060 and 4062 only with a tool or test pin fitted. It is essential not to subject the fitted tool to jolts or impacts.

 *Use only tools free of unbalance.*



- *Regulations for the prevention of accidents are to be observed!*
- *Permitted max. speed, forward feed and further specific instructions indicated by the manufacturer are to be observed.*
- *Any liability shall be excluded if defects or the consequences thereof are due to manipulation or modification to the product by the customer or by any third parties not authorized by KaVo EWL.*



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A 5 Changing tools/chucks

⚠ Tools and/or chucks must be changed (with 1 Fork spanner of 13 mm 6 and 1 ratchet spanner of 10 mm 7) only when the HF Motor-spindle EWL 4060 and/or 4062 is at a complete standstill. HF-converters must be made safe against accidental switching on, e.g. by pressing the power switch to "OFF".

A 5.1 Removing the chuck

Hold rotor 3 with spanner of 13 mm 6 and turn chuck 2 with ratchet spanner of 10 mm 7 in the direction of the arrow until chuck 2 can be removed towards the front.

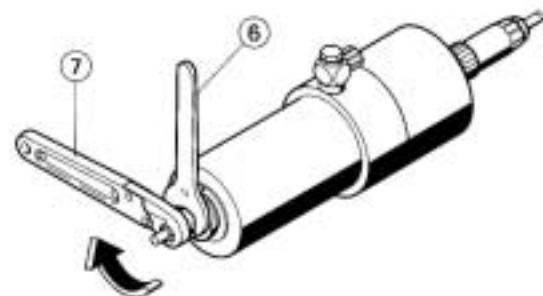
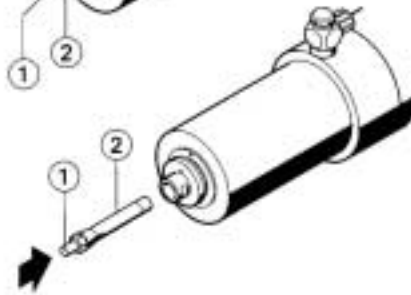
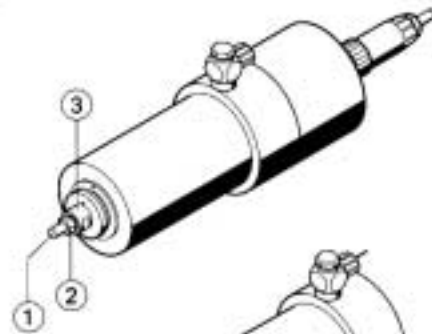
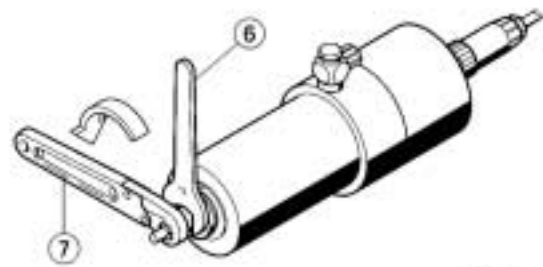
A 5.2 Inserting the chuck

Insert new chuck 2 with tool or test pin 1 inserted in the chuck holder.

Hold rotor 3 with spanner of 13 mm 6 and tighten the chuck 2 with ratchet spanner of 10 mm 7 in the direction of the arrow and thereby secure the tool or test pin 1 respectively.


When changing the tool, fix rotor 3 with spanner of 13 mm 6 and unscrew chuck 2 with ratchet spanner of 10 mm 7 in the direction of the arrow and remove until test pin 1 or the so far used tool can be removed towards the front.

Slide in new tool into chuck 2 so far as it will go. Fix rotor 3 with spanner of 13 mm 6 and screw up chuck 2 with ratchet spanner of 10 mm 7 in the direction of the arrow and thereby secure the tool.



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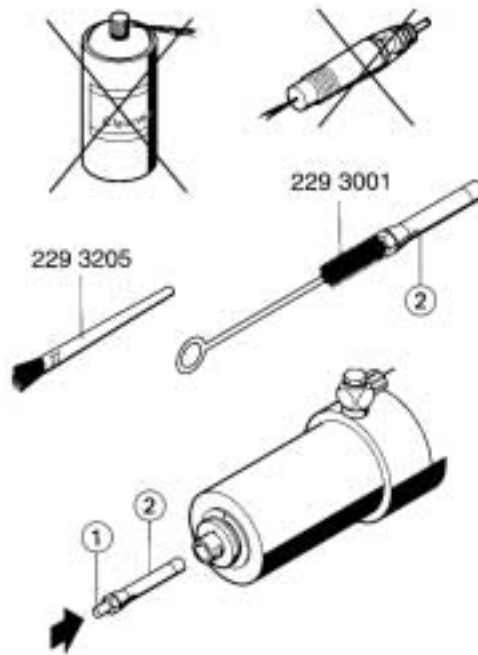
A 6 Maintenance

 On no account clean the HF Motor-spindle EWL 4060 and/or 4062 with ultrasound, steam jet, compressed air, etc. Under no circumstances should detergents like e.g. spray purifier, fat solvents, etc. get into the inside of the HF Motor-spindle EWL 4060 and/or 4062.

Clean the chuck ② regularly.

Clean chuck holder and chuck ② with an artist's brush or similar. Apply a light film of oil to the chuck.

Reinsert the clean chuck ② with tool or test pin ① in HF Motor-spindle EWL 4060 or 4062.



A 7 Technical data

for HF Motor-Spindle EWL 4060 and/or 4062 relate to operation with HF-Converter 4450:

Special steel case \varnothing 61,9 mm or 60 mm

Frequency 84 - 833 Hz

Idling speed 5,000 - 50,000 min⁻¹

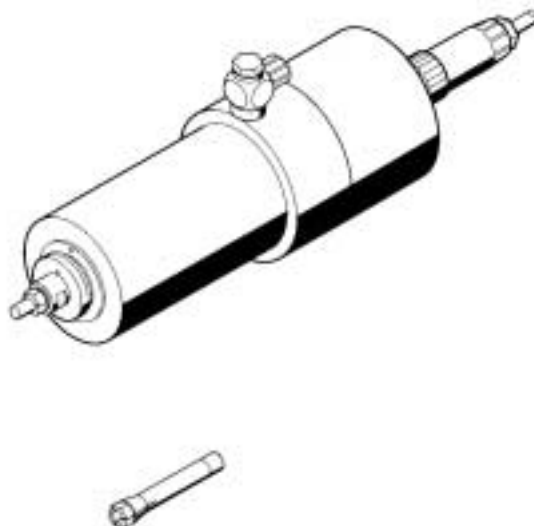
Torque max. 50 Ncm

Peak power max. 1,2 KW

Voltage max. 220 V

Current max. 7 A

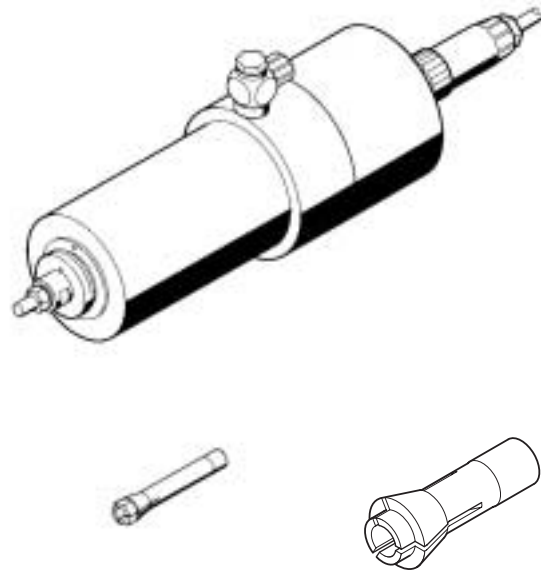
Weight (incl. connecting cable 1.5 m)
3.5 kg (4060)
or 3.6 kg (4062)



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Available Chucks

Order No.	∅	Order No.	∅
0.674.2122	0,3	0.674.2302	2,1
0.674.2132	0,4	0.674.2312	2,2
0.674.2142	0,5	0.674.2322	2,3
0.674.2152	0,6	0.674.2332	2,35*
0.674.2162	0,7	0.674.2342	2,4
0.674.2172	0,8	0.674.2352	2,5
0.674.2182	0,9	0.674.2362	2,6
0.674.2192	1,0	0.674.2372	2,7
0.674.2202	1,1	0.674.2382	2,8
0.674.2212	1,2	0.674.2392	2,9
0.674.2222	1,3	0.674.2402	3,0*
0.674.2232	1,4	0.674.2412	3,1
0.674.2242	1,5	0.674.2422	3,175*
0.674.2252	1,6	0.674.2432	3,2
0.674.2262	1,7	0.674.2442	3,3
0.674.2272	1,8	0.674.2452	3,4
0.674.2282	1,9	0.674.2462	3,5
0.674.2292	2,0	0.674.3132	4,0*



Standard Chucks*

Water cooling through EWL chucking device type 4860

Load limits
HF-Motorspindle EWL 4060 and EWL 4062:

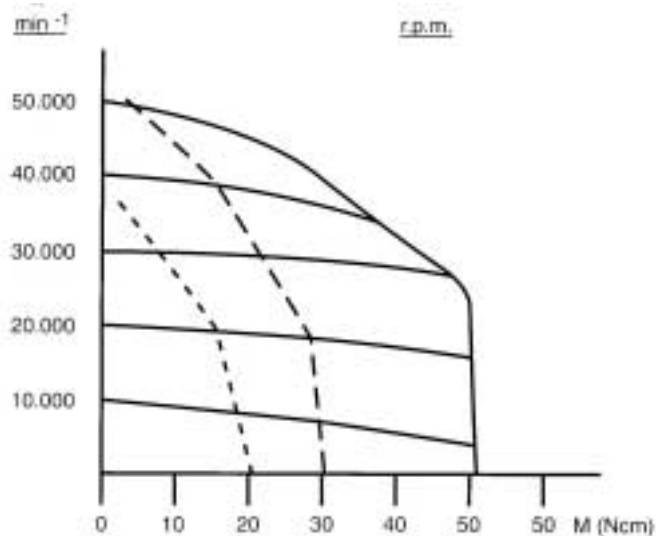
Operating mode: S1
Chucking device: 0.624.2570
Converter: type 4450

The chucking device contains the water cooling circulation:

Flow temperature: 12°C
Flow: ~ 0,8 l / min

----- Wasserkühlung

----- ohne Kühlung



Werte stimmen nur für den oben beschriebenen Aufbau.

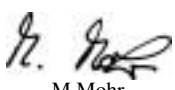
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Guarantee conditions

Under the valid KaVo EWL delivery and payment conditions, KaVo EWL gives a guarantee of satisfactory function and freedom from faults in material and manufacture for the duration of 6 months from the date of sale certified by the vendor. After expiry of the warranty, KaVo gives a guarantee of another 6 months for damage attributable to deficiencies in the material or in manufacture.

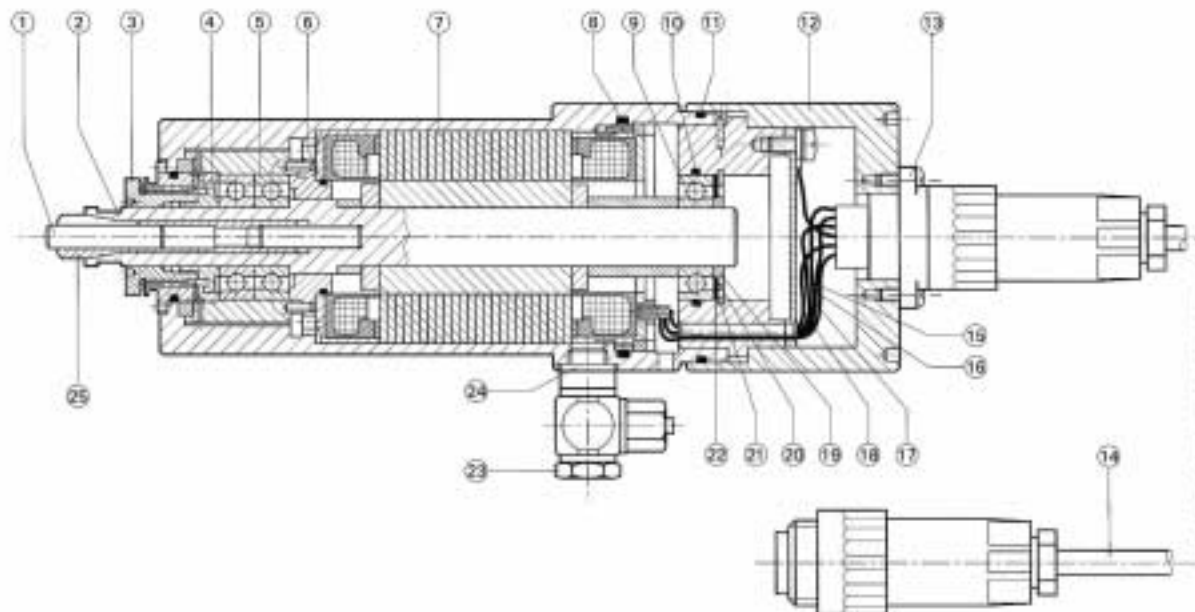
In the case of justifiable complaints, KaVo EWL shall supply spare parts or carry out repairs free of charge. KaVo EWL accepts no liability for defects and their consequences which have arisen or could have arisen as a result of natural wear, improper handling, cleaning or maintenance, noncompliance with the maintenance, operating and connecting instructions, corrosion, impurities in the air supply or chemical or electrical influences which are unusual or not admissible in accordance with KaVo's instructions. The guarantee shall become null and void if defects or their consequences can be attributed to interventions in or modifications to the product. Guarantee claims can only be validated if they are notified immediately in writing to KaVo EWL.

When the product is sent in, it must be accompanied by a copy of an invoice or delivery note which clearly shows the fabrication number.

Konformitätserklärung;		Declaration of conformity;	KE 54
Déclaration de conformité;		Declaración de conformidad;	
CE-Dichiarazione di conformità;			
Wir, We, Nous, Nosotros, Noi,		KaVo ELEKTROTECHNISCHES WERK GmbH Wangener Str. 78 D-88299 Leutkirch im Allgäu	
erklären, dass das Produkt	EWL-SF-Spindeln	typen 4031, 4032, 4033, 4040, 4041, 4042, 4043, 4051, 4052, 4060, 4061, 4062 4063	
declare that the product	EWL-HF-Spindle	types 4031, 4032, 4033, 4040, 4041, 4042, 4043, 4051, 4052, 4060, 4061, 4062 4063	
déclarons que le produit	EWL Broche HF	types 4031, 4032, 4033, 4040, 4041, 4042, 4043, 4051, 4052, 4060, 4061, 4062 4063	
declaramos que el producto	EWL Husillo del motor AV	types 4031, 4032, 4033, 4040, 4041, 4042, 4043, 4051, 4052, 4060, 4061, 4062 4063	
dichiariamo che il nostro prodotto	Motore industriale	types 4031, 4032, 4033, 4040, 4041, 4042, 4043, 4051, 4052, 4060, 4061, 4062 4063	
<p>auf das sich diese Erklärung bezieht, mit den wesentlichen Schutzanforderungen gemäß den Bestimmungen der Richtlinie(n) übereinstimmt. to which this declaration relates conforms to the essential safety requirements according to the provisions of Directive(s) auquel se réfère cette déclaration, est conforme aux exigences essentielles de protection conformément aux dispositions de la/ des Directive(s) al lo cual se refiere esta declaración, coincide con las esenciales exigencias de protección según las determinaciones de la(s) norma(s) a cui si fa riferimento in questa dichiarazione, è conforme alle misure di sicurezza secondo le direttive delle norm</p>			
89/336/EWG	(EMV-Richtlinie)		
98/37/EG	(Maschinenschutzrichtlinie)		
<p>Zur Beurteilung des Erzeugnisses wurden folgende Normen oder normativen Dokumente angewandt: The following standards or normative documents were used for assessing the product: Les normes ou autres documents normatifs suivants sont utilisés pour le jugement de ce produit : Para la evaluación del producto se aplicaron las siguientes normas o documentos norma: Per la valutazione del prodotto sono state applicate le seguenti normative o altri documenti normat:</p>			
VDE 0740-1	/ Handgeführte Elektrowerkzeuge		
EN 60204	/ Elektr. Ausrüstung von Industriemaschinen		
EN 55014	/ Funkentstörung		
Leutkirch, 16.11.2000			
			
		M.Mohr -Managing Director-	

4062

0.675.0660



Langjährige Verfügbarkeit der aufgeführten Ersatzteile wird garantiert.

Availability of spares is guaranteed over the long term.

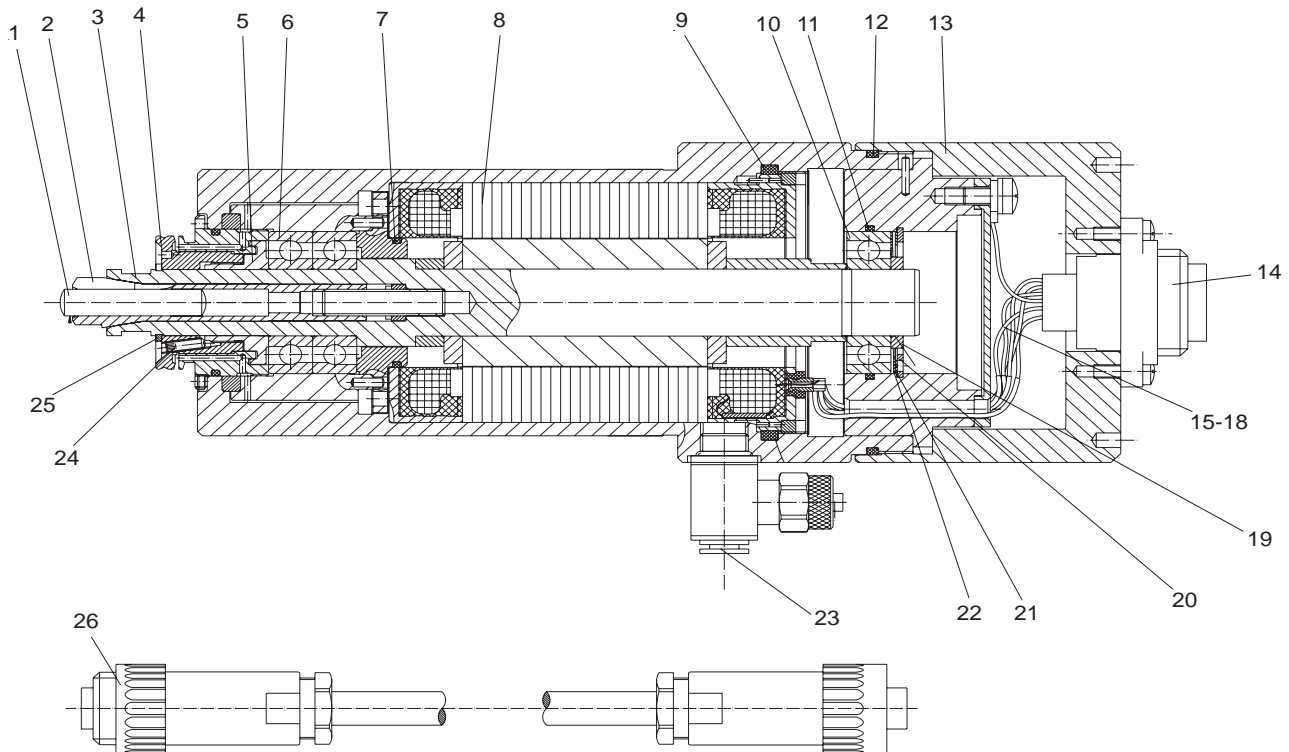
Le constructeur garantit à long terme la disponibilité des pièces de rechange mentionnées dans la présente documentation.

Se garantiza una larga disponibilidad de las piezas de recambio registradas.

Mat.- Nr.		DE	GB	FR	ES
Mat. No.					
N° d'article.					
Pos.	N° de material	Ersatzteil-Liste	Spare parts list	Liste des pièces de rechange	Lista de piezas de recambio
No.					
1	0.240.2308	Zylinderstift 6mm Ø	Cyl. pin Ø 6mm	Goupille cylindr. Ø 6mm	Posador cilíndrico 6mm
2	0.675.0651	Rotor	Rotor	Rotor	Rotor
3	0.675.1642	Spritzring	Fleeting ring	Anneau de chasse	Anillo-desviador
4	0.675.1632	Lagerring	Ring	Anneau	Anillo
5	0.220.0007	Spindellager	Spindle bearing	Palier de la broche	Cojinete del husillo
6	0.200.6516	O-Ring 26x1,5	O-Ring 26x1,5	Joint torique 26x1,5	Anillo-O 26x1,5
7	0.675.0641	Stator	Stator	Stator	Stator
8	0.200.6720	O-Ring 57x2,5	O-Ring 57x2,5	Joint torique 57x2,5	Anillo-O 57x2,5
9	0.220.0008	Spindellager	Spindle bearing	Palier de la broche	Cojinete del husillo
10	0.200.6621	O-Ring 32 x 1,5	O-Ring 32x1,5	Joint torique 32x1,5	Anillo-O 32x1,5
11	0.200.6724	O-Ring 64x2	O-Ring 64x2	Joint torique 64x2	Anillo-O 64x2
12	0.675.1052	Deckel	Cover	Couvercle	Tapa
13	0.223.0128	Gerätestecker	Apparatus plug	Fiche d' appareil	Clavija de enchufe
14	0.675.0561	Anschlußleitung	Connection line	Conduite de racorde.	Linea de conexión
15	0.692.6061	Leitung gelb	Yellow line	Conduite jaune	Conducción amarilla
16	0.692.6081	Leitung schwarz/rot	Black/red line	Conduite noire/rouge	Conducción negra/roja
17	0.692.6071	Leitung schwarz	Black line	Conduite noire	Conducción negra
18	0.692.6051	Leitung blau	Blue line	Conduite bleue	Conducción azul
19	0.675.1072	Ring	Ring	Anneau	Anillo
20	0.245.6017	Sicherungsring 32x1,2	Safety ring 32x1,2	Anneau de secur. 32x1,2	Anillo d. seguridad 32x1,2
21	0.200.2121	Scheibe	Washer	Rondelle	Arandela
22	0.222.4046	Ausgleichscheibe	Compens. washer	Rondelle de compens.	Arandela de compens.
23	0.220.0584	Schwenkversch.	Swif. screw-fitting	Raccord d' orientation	Atornilladura orientable
24	0.200.1046	Scheibe	Washer	Rondelle	Arandela
25	0.675.1482	Spannzange 6	Chuck 6	Pince de serrage 6	Tenazas 6

4060

0.675.0690



Langjährige Verfügbarkeit der aufgeführten Ersatzteile wird garantiert.

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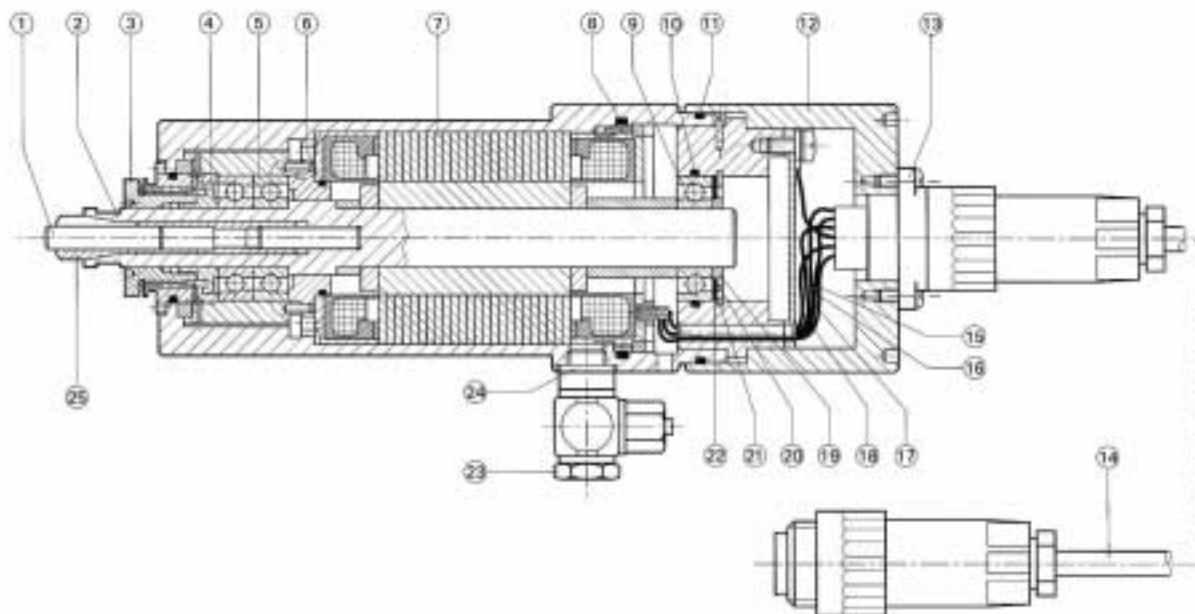
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Mat. - Nr.		DE	GB	FR	ES
Mat. No.					
N° d'article.					
Pos. No.	N° de material	Ersatzteil-Liste	Spare parts list	Liste des pièces de rechange	Lista de piezas de recambio
1	0.240.2308	Zylinderstift 6 mm	Cyl. pin 6 mm	Goupille cylindrique 6 mm	Posador cilíndrico 6mm
2	0.675.1482	Spannzange 6 mm	Chuck 6 mm	Pince de serrage 6 mm	Tenazas 6 mm
3	0.675.0891	Rotor	Rotor	Rotor	Rotor
4	0.675.1972	Spritzring	Fleeting ring	Anneau de chasse	Anillo-desviador
5	0.675.1982	Lagerring	Ring	Anneau	Anillo
6	0.220.0007	Spindellager	Spindle bearing	Palier de la broche	Cojinete del husillo
7	0.200.6516	O-Ring 26x1,5	O-Ring 26x1,5	Joint torique 26x1,5	Anillo-O 26x1,5
8	0.675.0641	Stator	Stator	Stator	Stator
9	0.200.6720	O-Ring 57x2,5	Ring 57x2,5	Anneau 57x2,5	Anillo 57x2,5
10	0.220.0008	Spindellager	Spindle bearing	Palier de la broche	Cojinete del husillo
11	0.200.6621	O-Ring 32x1,5	Ring 32x1,5	Anneau 32x1,5	Anillo-O 32x1,5
12	0.200.6724	O-Ring 64x2	Ring 64x2	Anneau 64x2	Anillo-O 64x2
13	0.675.1052	Deckel	Cover	Couvercle	Tapa
14	0.223.0128	Gerätestecker	Apparatus plug	Fiche d'appareil	Clavija de enchufe
15	0.692.6071	Leitung schwarz	Black line	conduite noire	conduccion negra
16	0.692.6061	Leitung gelb	yellow line	conduite jaune	conduccion amarilla
17	0.692.6051	Leitung blau	blue line	conduite bleue	conduccion azul
18	0.692.6081	Leitung schwarz / rot	black / red line	conduite noire / rouge	conduccion negra/roja
19	0.675.1072	Ring	Ring	Anneau	Anillo
20	0.245.6017	Sicherungsring 32x1,2	Safety ring 32x1,2	Anneau sécurité 32x1,2	Anillo seguridad 32x1,2
21	0.200.2121	Scheibe	Washer	Rondelle	Arandela
22	0.222.4046	Ausgleichsscheibe	Compensation washer	Rondelle de compensation	Arandela de compensacion
23	0.220.0584	Schwenkverschraubung	Swiv. screw fitting	Raccord d'orientation	Atornilladura orientable
24	0.249.6578	Gewindestift	Grub screw	Goupille	Varilla roscada
25	0.222.4140	Sprengring	Snap ring	Jonc	Anillo de retencion
26	0.675.0561	Anschlußleitung	Connection line	Conduite de raccordem.	Linea de conexion

4060

0.675.0650



Langjährige Verfügbarkeit der aufgeführten Ersatzteile wird garantiert.

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Le constructeur garantit à long terme la disponibilité des pièces de rechange mentionnées dans la présente documentation.

Se garantiza una larga disponibilidad de las piezas de recambio registradas.

Mat.- Nr.		DE	GB	FR	ES
Mat. No.					
N° d'article.		Ersatzteil-Liste	Spare parts list	Liste des pièces de rechange	Lista de piezas de recambio
Pos. No.	N° de material				
1	0.240.2308	Zylinderstift 6mm Ø	Cyl. pin Ø 6mm	Goupille cylindr. Ø 6mm	Posador cilíndrico 6mm
2	0.675.0651	Rotor	Rotor	Rotor	Rotor
3	0.675.1642	Spritzring	Fleeting ring	Anneau de chasse	Anillo-desviador
4	0.675.1632	Lagerring	Ring	Anneau	Anillo
5	0.220.0007	Spindellager	Spindle bearing	Palier de la broche	Cojinete del husillo
6	0.200.6516	O-Ring 26x1,5	O-Ring 26x1,5	Joint torique 26x1,5	Anillo-O 26x1,5
7	0.675.0641	Stator	Stator	Stator	Stator
8	0.200.6720	O-Ring 57x2,5	O-Ring 57x2,5	Joint torique 57x2,5	Anillo-O 57x2,5
9	0.220.0008	Spindellager	Spindle bearing	Palier de la broche	Cojinete del husillo
10	0.200.6621	O-Ring 32 x 1,5	O-Ring 32x1,5	Joint torique 32x1,5	Anillo-O 32x1,5
11	0.200.6724	O-Ring 64x2	O-Ring 64x2	Joint torique 64x2	Anillo-O 64x2
12	0.675.1052	Deckel	Cover	Couvercle	Tapa
13	0.223.0128	Gerätestecker	Apparatus plug	Fiche d' appareil	Clavija de enchufe
14	0.675.0561	Anschlußleitung	Connection line	Conduite de racorde.	Linea de conexion
15	0.692.6061	Leitung gelb	Yellow line	Conduite jaune	Conducción amarilla
16	0.692.6081	Leitung schwarz/rot	Black/red line	Conduite noire/rouge	Conducción negra/roja
17	0.692.6071	Leitung schwarz	Black line	Conduite noire	Conducción negra
18	0.692.6051	Leitung blau	Blue line	Conduite bleue	Conducción azul
19	0.675.1072	Ring	Ring	Anneau	Anillo
20	0.245.6017	Sicherungsring 32x1,2	Safety ring 32x1,2	Anneau de secur. 32x1,2	Anillo d. seguridad 32x1,2
21	0.200.2121	Scheibe	Washer	Rondelle	Arandela
22	0.222.4046	Ausgleichscheibe	Compens. washer	Rondelle de compens.	Arandela de compens.
23	0.220.0584	Schwenkversch.	Swif. screw-fitting	Raccord d' orientation	Atornilladura orientable
24	0.200.1046	Scheibe	Washer	Rondelle	Arandela
25	0.675.1482	Spannzange 6	Chuck 6	Pince de serrage 6	Tenazas 6

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